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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/817,475	04/02/2004	Jung Hee Lee	9951-003US	3214
22897	7590	06/21/2006	EXAMINER	
DEMONT & BREYER, LLC			SASTRI, SATYA B	
SUITE 250			ART UNIT	
100 COMMONS WAY			PAPER NUMBER	
HOLMDEL, NJ 07733			1713	

DATE MAILED: 06/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/817,475

**Applicant(s)**

LEE ET AL.

**Examiner**

Satya B. Sastri

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,6 and 8-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 6, 8-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This office action is in response to amendment filed on May 3, 2006. *Claims 1, 6, 8- 21* are now pending in the application.

2. All previous rejections are rendered moot by the amendment filed on May 3, 2006. Furthermore, new grounds of rejection are necessitated by the amendment and therefore, this action is made final.

### ***Claim Objection***

3. *Claim 1* is objected to for incorrect spelling of “polyolefin” in line of claim 1. Additionally, the phrase “copolymers of different olefins” is misleading in the claim language because the invention is not restricted to olefinic monomers alone. As noted in the instant specification, on page 9, olefinic monomers are copolymerized with other comonomers (such as vinyl acetate, ethyl acrylate and butyl acrylate which are not olefins). Olefinic monomers typically refer to hydrocarbon monomers only. Appropriate corrections are requested.

### ***Previously Cited Statutes***

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

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5. *Claims 1, 6, 8-21* are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (KR 9204784 B) in view of Kojima et al. (US 5,338,780).

The prior art to Lee concerns resin composition for insulating cables comprising 100 part by wt. of polyethylene as base resin, 0.3-0.8 part by wt. of carbon black with a surface area in the range of 90-110 m<sup>2</sup>/g and a particle size of 20-30 nm and 0.1 to 0.8 part of antioxidant.

The difference between the prior art and the instant invention is that the prior art does not specifically teach the inclusion of UV and light stabilizers or the type of antioxidants in the composition.

Prior art to Kojima et al. is in an analogous field and discloses a polyolefin resin containing carbon black is blended with (B) a phenolic compound of formula (I), (C) an organic sulfur compound such as (II-1) or (II-2), (D) a piperidine compound in amounts of 0.01 to 1 part and (E) an epoxy compound of Bisphenol A type glycidyl ether (abstract). The polyolefin resins disclosed include polyethylene, polypropylene, copolymers of olefins with acrylic acid, methacrylic acid, vinyl acetate etc. (column 2, lines 16-33). The polyolefin resin may additionally antioxidants, stabilizers etc. Disclosed antioxidants include phenolic antioxidants other than (B), sulfur antioxidants other than component (C) and phosphorus containing antioxidants (column 7, lines 42-68 and column 8, lines 1-14). The light stabilizers may be those based on benzotriazoles, benzophenones, hydroxybenzoates etc. disclosed in column 8, lines 19-43. Piperidine compounds are those disclosed in column 3, lines 59-67, columns 4-6, column 9, lines 43-56 and disclosed organic sulfur containing compounds include the instantly claimed compounds of claim 20 (column 3, lines 46-58, column 9, lines 42-55). Light stabilizers based on benzotriazoles and benzophenones are disclosed as capable of absorbing ultraviolet radiation

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(column 8, lines 15-44) and thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include 0.01 to 1 part of piperidine and bezophenone and/or benzotriazole type additives in the composition of Lee and thereby obtain the instant invention.

It is noted that the prior art to Kojima et al. discloses polyolefin compositions containing carbon black with additives B-E exhibit stability against excellent thermal oxidation (column 1, lines 40-45). It is also noted that piperidines in the prior art are effective as antioxidants while the same class of compounds are recited as light stabilizers in the claims.

With regard to claim 12, it is noted that the prior art Kojima et al. recognizes that a variety of piperidines based on 2,2,6,6 piperidine are useful as stabilizers in polyolefin compositions (column 4, lines 20-42). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include 2,6,6,6 piperidine compounds such as those claimed instantly in the compositions of Kojima et al. and thereby obtain the instant invention, absent a showing of unexpected results.

6. ***Claims 1, 6, 8-21*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kojima et al. (US 5,338,780) in view of Lee (US 6,197,852).

Prior art to Kojima et al. discloses a polyolefin resin (A) containing carbon black is blended with (B) a phenolic compound of formula (I), (C) an organic sulfur compound such as (II-1) or (II-2), (D) a piperidine compound and (E) an epoxy compound of Bisphenol A type glycidyl ether (abstract). The polyolefin resins disclosed include polyethylene, polypropylene, copolymers of olefins with acrylic acid, methacrylic acid, vinyl acetate etc. (column 2, lines 16-33). Carbon blacks such as acetylene black, furnace black etc. with a particle size less than 30

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µm from the viewpoint of dispersibility and may be used in amounts of 0.05-10%w/w (column 2, lines 45-64). The amounts of (B) to (E), based on 100 parts of polyolefin resin containing carbon black may range from 0.01-1 part by wt. of phenolic compound (B), 0.02-2 parts by wt. of organic sulfur compound (C), 0.01-1 part by wt. of piperidine compound (D) and 5 parts by wt. of E (column 7, lines 20-42). The polyolefin resin may additionally antioxidants, stabilizers etc. Disclosed antioxidants include phenolic antioxidants other than (B), sulfur antioxidants other than component (C) and phosphorus containing antioxidants (column 7, lines 42-68 and column 8, lines 1-14). The light stabilizers may be those based on benzotriazoles, benzophenones, hydroxybenzoates etc. disclosed in column 8, lines 19-43. Piperidine compounds are those disclosed in column 3, lines 59-67, columns 4-6, column 9, lines 43-56 and disclosed organic sulfur containing compounds include the instantly claimed compounds of claim 20 (column 3, lines 46-58, column 9, lines 42-55).

The difference between the prior art and the instant invention is that the prior art does not specifically teach the particle carbon black filler size of 30 nm.

The secondary reference to Lee is in an analogous field of polyolefin compositions with carbon black. The prior art teaches that it is particularly advantageous to use smaller particle size, in the range of 10-60 nm, to effectively disperse carbon black in thermoplastic materials (column 3, lines 55-67 and column 4, lines 1-9). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include carbon black having particle size 10-60 nm in the compositions of Kojima et al. and thereby obtain the instant invention. It is the examiner's position that the surface area and particle size are related and the carbon black particles of Lee would intrinsically have the instantly claimed surface areas.

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Additionally, the prior art to Lee discloses compositions based on LDPE, MDPE or HDPE with a melt index of 0.1 to 100 g/10 min. (column 3, lines 26-35).

With regard to claim 12, the prior art Kojima et al. recognizes that a variety of piperidines based on 2,2,6,6 piperidine are useful as stabilizers in polyolefin compositions (column 4, lines 20-42). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include 2,6,6,6 piperidine compounds such as those claimed instantly in the compositions of Kojima et al. and thereby obtain the instant invention, absent a showing of unexpected results.

### ***Response to Arguments***

7. Applicants' amendment introduces limitations with regard to particle dimension of carbon black. Applicants argue that it would not have been obvious to one of ordinary skill in the art to include carbon black having a particle size of 10-60 nm of Lee in the compositions of Kojima et al. It is noted that Kojima et al. disclose the limitation of "a particle size less than 30  $\mu\text{m}$  from the view point of dispersibility and may be used in amounts of 0.05-10%w/w (column 2, lines 45-64)". Thus, clearly, the lower limit is not disclosed with the implication that smaller particles are preferred from the point of view of dispersibility. The secondary reference to Lee et al. reinforces the same and clearly teaches "that it is particularly advantageous to use smaller particle size, in the range of 10-60 nm, to effectively disperse carbon black in thermoplastic materials (column 3, lines 55-67 and column 4, lines 1-9)".

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It is noted that the prior art to Kojima et al. discloses polyolefin compositions containing carbon black with additives B-E exhibit stability against excellent thermal oxidation (column 1, lines 40-45). It is also noted that piperidines in the prior art are effective as antioxidants while the same class of compounds are recited as light stabilizers in the instant claims. Thus, Kojima et al. disclose compositions comprising polyolefin (A) type base resin, carbon black, phenolic-type antioxidant (B) and piperidines (useful as UV stabilizer) (D) in the compositions and differ from the instant invention only in the particle size of carbon black used.

***Action Is Final***

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.



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***Future Correspondence***


9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Satya Sastri whose telephone number is 571-272-1112.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone numbers for the organization where this application or proceeding is assigned is (571) 273-8300 for regular communications. The unofficial direct fax phone number to the Examiner's desk is 571-273-1112.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
SATYA SASTRI

June 16, 2006

  
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